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Review

Sleep assessment of hospitalised patients: A literature review

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ABSTRACT

Background: Sleep is a dynamic and essential part of human life and health. In healthcare settings, nurses are strategically placed to promote sleep and sleep health. In this regard, nursing actions should be based upon effective methods of assessment of patient sleep. Standardised sleep assessment does not currently occur in the care of acute hospitalised patients. Use of an appropriate measurement tool would help evaluate inpatient sleep. An effective, efficient sleep assessment tool is needed to aid clinicians. Such assessment would enable specific nursing intervention to be tailored to individual patients.
Objective: The objective of this paper was to examine the literature on sleep measurement to identify subjective sleep assessment tools that may be suitable for routine use with hospitalised patients, and to evaluate their reliability and validity.
Method: A review of existing literature was undertaken to identify and evaluate subjective sleep measurement tools.
Results: The initial literature searches identified 402 articles, of which ten met the criteria for review. These reported on three subjective sleep measurement scales: the Richards-Campbell Sleep Questionnaire; the St Mary's Hospital Sleep Questionnaire; and the Verran Snyder-Halpern Sleep Scale. The Richards-Campbell Sleep Questionnaire is brief and easy to use. In specific samples, its items correlate with domains reflecting sleep quality and has shown excellent internal consistency. Equivocal results and scoring challenges were found with the St Mary's Hospital Sleep Questionnaire. The Verran Snyder-Halpern Sleep Scale captured sleep disturbance and total sleep time, but time-to-complete is more burdensome than the Richards-Campbell Sleep Questionnaire.
Conclusions: The current use of sleep assessment instruments in the acute hospital setting is restricted mainly to research activities. Of the three tools identified that could be used clinically to measure inpatient sleep, and although it was developed for use in the intensive care setting, the Richards-Campbell Sleep Questionnaire held greatest potential due to its ease and rapidity of use. However, it has yet to be validated for use with general hospital inpatients, and further research is required in this area.

What is already known about the topic?

- Various subjective and objective sleep measurement instruments have been used in research to assess the sleep of hospitalised patients. Current routine clinical practice does not include standardised inpatient sleep assessment.

What this paper adds

- This paper evaluates three existing brief and easy-to-use subjective sleep measurement tools that could be used to

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assess inpatient sleep. It describes their psychometric and practical properties and suggests a tool for future testing in an acute hospitalised sample.

1. Introduction

Sleep is a dynamic component of human behaviour that is essential to good health and survival. An exponential expansion in sleep research in recent decades has quashed the theory that sleep is a passive state. It is influenced by light and dark and alternates with wakefulness in a cyclical circadian pattern. Good sleep comprises specific sleep stages which cycle throughout the night, initiated by, and modulating, an intricate cascade of neurochemical activity with resulting systemic benefits (Fuller et al., 2006). A growing evidence base highlights the benefits of good sleep and suggests multi-faceted detrimental physiological and psychological effects of sleep impairment.

Lee's theoretical model suggests disrupted or limited sleep equates to sleep loss, with impaired sleep predisposing to adverse health outcomes (Lee, 2003). Sleep impairment has been shown to increase stress responses thereby delaying healing (Altemus et al., 2001; Gouin and Kiecolt-glaser, 2011). There is also substantive evidence to suggest that acute sleep deprivation produces detrimental sequelae to cardiovascular, metabolic and endocrine systems (Harsch, 2007; Knutson et al., 2007; Somers et al., 2008), possibly mediated by alterations in multiple gene expression dysregulated by sleep truncation (Moller-levet et al., 2013). A shorter length of sleep potentiates alterations in cellular immune function (Cohen et al., 2009; Irwin et al., 1994) and may be a contributing factor to reduced postural control and falls (Patel et al., 2008). Additionally, inadequate or disrupted sleep can lead to a sense of hyperalgesia (Roehrs et al., 2006) and contribute to dysregulation of emotional reactivity (Franzen et al., 2008). Sleep limitation can occur due to reduced quality or quantity of sleep or misalignment of the circadian rhythm. Additionally specific sleep disorders, such as obstructive sleep apnoea, can cause sleep disruption and physiologic derangements and, if undiagnosed, may potentiate complications in acutely hospitalised patients (Gupta et al., 2001; Venn, 2011).

Sleep disruption in the acute hospital setting has been reported widely in the literature (Humphries, 2008; Missildine et al., 2010; Tranmer et al., 2003; Yilmaz et al., 2012). Patients have attributed sleep disruption to environmental factors, symptom management and nursing interventions (Hultman et al., 2012). Around 30% of patients are dissatisfied with their night's rest; which nurses often fail to recognise (Johansson et al., 2005). As the primary care givers to patients in the hospital environment, nurses are strategically placed to assess and promote their patients' sleep. However, it is possible that awareness of the health impacts of good sleep is suboptimal by nursing staff in the acute hospital environment, leading in turn to a lack of emphasis on procedure with regard to patient sleep promotion. One of the barriers to sleep promotion is the lack of a standardised tool to assess sleep (Ye et al., 2013). Routine use of an easy-to-use, brief sleep measurement tool has the potential to help nurses identify sleep-related issues and communicate this in a concise manner. Clarification of these issues could provide an impetus for improved nursing assessment which should, in turn, lead to implementation of appropriate nursing interventions that promote better sleep for patients. For clinical purposes, there is a need for a validated, brief sleep assessment tool for hospitalised patients.

To date, use of sleep measurement tools in hospital settings has been related to sleep research agendas, focusing on specific issues such as pain (Cronin et al., 2001), ageing (Missildine et al., 2010), and delirium (Jacobson et al., 2008). In sleep research and investigations, laboratory-based polysomnography is acknowledged as the gold standard measurement. It captures multiple sleep variables, including sleep onset, duration, awakenings and architecture. Polysomnography objectively maps sleep stages and cycles by correlation of the various biometrics of modified electro-encephalography, ocular and submental electromyography to track specific muscle activity and monitoring several cardio-respiratory domains (Rodenbeck et al., 2006; Smith and Lee-Chiong, 2008).

However, polysomnography is costly, requiring dedicated space, equipment and the attendance of trained personnel to apply electrodes and wiring, monitor data acquisition and troubleshoot any problems which may arise. It is also burdensome for the patient. These issues render polysomnography unsuitable for daily use in an acute hospital setting. Portable polysomnography instruments are available and used in acute care settings, but again require time expenditure and specific technical expertise to apply the electrodes and leads, and to set up the unit for recording. The presence of head leads can also make it cumbersome for patients, and there is a risk of data compromise due to the loss of leads or electrodes during the course of the night's study.

Other portable monitoring devices have been developed. The bispectral index measurement is used mainly in specialised environments such as anaesthetics and critical care units. Sensors placed on the forehead collect limited but continuous electroencephalographic data that detect cortical arousal and monitor levels of sedation (Dahaba et al., 2011). While not originally designed to monitor normal sleep, the bispectral index has the capacity to measure depth of sleep (Dahaba et al., 2011). In the context of a small clinical trial, Bourne et al. (2007) concluded the bispectral index may be the most useful objective measure of sleep for critical care patients. Actigraphy is another portable modality commonly used in sleep research (Mykytyn et al., 1999; Sadeh, 2011). It is similar in size to a wrist watch, is worn the same way and records body movement. The data it captures are downloaded and analysed to map activity and inactivity segments from which wake-sleep periods are then inferred (Chesson et al., 2007). In their review of 25 actigraphy studies, Van de water et al. (2011) determined that actigraphy was the most appropriate objective measure available to inform general sleep patterns in a non-laboratory setting.

Sleep is also measured subjectively. While objective instruments capture and quantify data to present a clear depiction of what occurs physically, subjective tools rely

Table 1
Domains of sleep quality.

- Sleep onset latency: the time it takes to fall asleep
- Sleep maintenance: the ability to stay asleep
- Sleep length: measured in terms of the total sleep time
- Sleep efficiency: total sleep time divided by total time in bed, expressed as a percentage
- Wakefulness after sleep onset: the amount of time awake between sleep onset and final waking in the morning
- Mid-sleep awakenings or disturbance: the reasons for awakenings from sleep, e.g. exogenous factors such as noise or endogenous factors such as pain
- Sleep patterns: usual time to bed and time of morning waking
- Descriptive feelings: e.g. feeling rested and refreshed, having had an adequate amount of sleep
- Sleep-related breathing disorders; such as obstructive sleep apnoea

on the feedback of the patient and/or their carer to provide an existent view of their sleep experience. It is thus a complementary approach to objective sleep measurement. A proliferation of sleep scales, diaries and questionnaires is available (Shahid, 2012). These scales measure various domains of sleep behaviour. Most have been designed for use with specific populations, although their use has been extrapolated to other groups.

In the literature, 'sleep quality' is often used to describe what it is that instruments measure. However, the concept and definition of sleep quality is elusive and subjective. A next-day sense of feeling rested and restored is one basis for deciding sleep quality (Harvey et al., 2008), but it also has associations with the objective domains pertaining to the sleep period (Åkerstedt et al., 1997). The domains of wakefulness after sleep onset, sleep onset latency and total sleep time may be the better predictors of sleep quality (Krystal and Edinger, 2008) (see Table 1).

Although there are several subjective sleep scales that assess sleep in the above domains [for example, the Pittsburgh Sleep Quality Index, Insomnia Severity Index, Jenkins Sleep Scale and the Medical Outcomes Study – Sleep Scale], they require the patient to assess their sleep over time frames greater than two weeks, which renders them inappropriate for shorter-length in-hospital sleep assessment. A single-item sleep quality numeric rating scale has also been used in an outpatient sample (Martin et al., 2009), which has shown validity, responsiveness and reproducibility in individuals with fibromyalgia (Cappelleri et al., 2009).

In terms of assessing patients' sleep, the following considerations should underpin tool selection: which aspect(s) of sleep need to be assessed; does the tool measure what it purports to measure (validity); and is it reliable?

2. Method

2.1. Objectives

The objectives of this review were to:

- Identify non-burdensome subjective sleep assessment tools suitable for use in an acute hospital setting.
- Determine the reliability and validity of relevant tools.

2.2. Search strategy

A literature search was undertaken to identify studies that had used subjective sleep measurement instruments with hospitalised patients.

The following databases were searched: CINHAL, Embase, Ovid Medline, PsycInfo, PubMed, Scopus, Science Direct Health Policy Reference Centre (simple keyword search). All expanders and combinations of the following terms were searched: reliability and validity of sleep measurement instruments; sleep quality in hospitalised patients; sleep deprivation; sleep disturbance; actigraphy; actimetry; actography; sleep questionnaire; and sleep scales. The terms postoperative and post-anaesthesia were added in an attempt to capture additional related studies.

Compared with other fields of health care, sleep research is new, so a literature search was initiated stretching back to 1980 to capture activity that had occurred in hospitalised patients regarding use of validated subjective sleep tools. Filters were applied to the search, limiting papers to those studies involving humans older than eighteen years and published in English. Of the papers located, reference lists were also scanned for further papers and a search was undertaken to discover any unpublished papers whose primary focus revolved around the measurement of sleep quality in an acute hospital setting.

2.3. Inclusion criteria

Only studies that met the following three criteria were retrieved for full review:

- Studies utilising brief sleep assessment tools in acute hospital ward settings.
- Studies using sleep assessment tools that assessed sleep onset latency, wakefulness after sleep onset, length and depth of sleep.
- Studies that reported validity and reliability data.

2.4. Exclusion criteria

- Studies involving children or adolescent participants [paediatric sleep responses and metrics differ from those of adults (Garetz, 2008)].

3. Results

Four hundred and two references were found in the initial search, of which 90 were set aside for further consideration. Nine papers that reviewed various sleep tools were excluded (Bourne et al., 2007; Cole et al., 2007; Devine et al., 2005; Ghegan et al., 2006; Omachi, 2011; Smith and Wegener, 2003; Van de water et al., 2011; Vernon et al., 2010; Wells et al., 2009). Ten studies met the inclusion criteria for review (see Fig. 1) and are summarised in Table 2. These studies reported on three sleep measurement instruments, which are reviewed below, and summarised in Table 3.

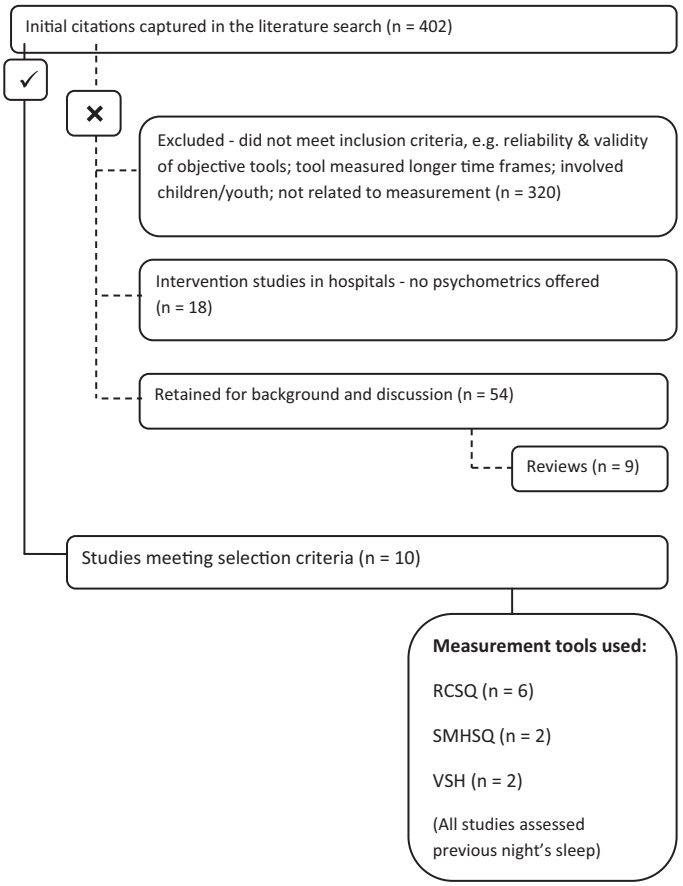

Fig. 1. Study selection process. RCSQ, Richards-Campbell Sleep Questionnaire; SMHSQ, St Mary's Hospital Sleep Questionnaire; VSH, Verran Snyder-Halpern Sleep Scale.

Table 2
Sleep measurement studies reviewed.

Scale	Author	Year	Sample	Sample size	Additional measures	Conclusions
RCSQ	Richards et al.	2000	Intensive care patients	70	Polysomnography	Demonstrated reliability and convergent validity
	Frisk & Nordstrom	2003	Intensive care patients	33		Good inter-rater correlation between patients and nurses
	LaReau et al.	2008	Older cardiology/medical inpatients	59		Cronbach's α .82 for RCSQ
	Nicolas et al.	2008	Intensive care patients	104		Nurses tend to overestimate patient sleep
	Missildine et al.	2010	Elderly inpatients	48	Actigraphy	Some convergent validity noted
	Kamdar et al.	2012	Medical intensive care patients paired with nurses	92		Patient-nurse inter-rater evaluation found nurses tend to overestimate patient sleep
SMHSQ	Ellis et al.	1981	Composite of surgical, medical and psychiatric inpatients plus healthy subjects	93		Test-retest reliability demonstrated
	Leigh et al.	1988	Inpatients with rheumatoid conditions	222		Important aspects are sleep onset and perceived sleep quality
VSH	Fontaine	1989	Intensive care trauma patients	20	Polysomnography EPSBOT	VSH showed convergent validity with polysomnography only in awakenings >4 min. Nursing observation useful in detecting wakefulness
	Kroon & West	2000	Non-surgical cardiac patients	13	Actigraphy EPSBOT	No statistically significant difference between instruments for the assessment of total sleep

Table 3
Properties of identified sleep measurement tools meeting inclusion criteria.

Properties	RCSQ	SMHSQ	VSH
Completed by	Patient/carer	Patient	Patient
Time to complete (min)	2–5	5–10	10–15
Number of items	5	14–15	15
Response scale	Visual analogue scale	Variable-point Likert plus free text response	Visual analogue scale
Sleep domains measured			
Sleep onset	✓	✓	✓
Total sleep time	✓	✓	✓
Sleep awakenings	✓	✓	✓
Sleep maintenance	✓		
Defines sleep disturbance	✓	✓	
Sleep adequacy	✓	✓	✓
Psychometric properties			
Reliability; internal consistency	Cronbach's α .82–.92	Kendall's tau .70–.96 (test–retest reliability)	Cronbach's α .70–.87
Validity			
Content/face	✓	✓	✓
Convergent	✓	×	Awakenings >4 min
Discriminant	×	×	✓
Predictive	×	×	×

RCSQ, Richards Campbell Sleep Questionnaire; SMHSQ, St Mary's Hospital Sleep Questionnaire; VSH, Verran Snyder-Halpern Sleep Scale.

3.1. Richards-Campbell sleep questionnaire (RCSQ)

Six studies reported the use of the RCSQ which was originally developed as a five-item scale for patients to report on their previous night's sleep in the critical care environment. (Richards et al., 2000). According to the developer, items correlated with polysomnography in the domains of sleep onset, sleep depth and awakenings and total sleep time (Richards et al., 2000).

The RCSQ takes approximately two minutes to complete, with each item set to a 0–100 mm visual analogue scale. Item values are summated and divided by five providing a mean score reflecting the patient's perception of their sleep. Thus far, the RCSQ has had limited application beyond the critical care setting where validation studies have been conducted (Frisk and Nordstrom, 2003; Kamdar et al., 2012; Richards et al., 2000). However, a feasibility study of elderly hospitalised patients compared the RCSQ with actigraphy and noted a moderate correlation ($r = .57$, $p = <.01$) between RCSQ scoring and night time sleep minutes (Missildine et al., 2010). Another study utilised the RCSQ in an interventional study in the setting of a cardiology unit and medical ward, reporting a Cronbach's α of .82 (Lareau et al., 2008). It is therefore included in this review.

Measured against polysomnography in a sample of critical care patients, the RCSQ isolated the single factor of the sleep efficiency index (Richards et al., 2000). Though not statistically significant ($p = .07$), RCSQ items showed a strong association with sleep onset ($r = -.51$). The RCSQ also demonstrated strong correlations with deep sleep ($r = .59$), the lighter sleep stage of N2 ($r = .64$) and REM ($r = .55$) (Richards et al., 2000). The RCSQ has demonstrated a reliability coefficient of .90 to .92 (Frisk and Nordstrom, 2003, Richards et al., 2000). An extra item has been added by subsequent researchers to capture the domain of sleep disturbance from noise (Kamdar et al., 2012; Missildine et al., 2010). Patient-nurse reliability has been equivocal. Two studies suggested nurse bias towards the overestimation of patient sleep (Kamdar et al., 2012; Nicolas et al., 2008) while Frisk and Nordstrom (2003) found a high degree of inter-rater correlation ($r = 86$; $p = <0.001$).

3.2. St Mary's Hospital Sleep Questionnaire (SMHSQ)

Two studies using the SMHSQ were reviewed. This 14-item composite questionnaire was designed to evaluate sleep and waking behaviour pertaining to the previous 24 h, seeking to capture the domains of sleep onset, depth, length and awakenings (Ellis et al., 1981). It has been utilised by studies with various samples, including women, patients with fibromyalgia, drug withdrawal and those with obesity hypoventilation (Hollander et al., 2001; Janssens et al., 2009; Mcgregor et al., 2005). The SMHSQ contains several items each with its own scale, as well as open response items. Scoring has not been standardised.

In psychometric testing in 93 hospitalised patients, total reliability of the questionnaire's items ranged from .70 to .96 as measured by Kendall's tau (Ellis et al., 1981). Later factor analysis of the questionnaire yielded equivocal results; however, sleep onset and sleep quality emerged as the stronger domains within this questionnaire (Leigh et al., 1988).

3.3. Verran Snyder-Halpern (VSH) Sleep Scale

Two studies were found that used the VSH. Its developers initially used an eight-item VAS tool to capture characteristics of sleep latency, fragmentation, length and depth with a further six items added to increase measurement variables (Snyder-Halpern and Verran, 1987). This version has been used in psychometric testing (Fontaine, 1989), although one study was found that used a 15-item version (Call-Schmidt and Richardson, 2003). Each item is set to a 0–100 mm response scale. A total score, representative of overall sleep quality can be calculated by summating each item response, bearing in mind some items need to be considered in reverse. It is suggested this scale takes 10–15 min to complete and less time than that to score (Snyder-Halpern and Verran, 1987). This tool has

been used for research in critical care; hospital noise; patients with chronic pain and general hospital patients; however, it was originally validated to measure sleep in healthy adults (Snyder-Halpern and Verran, 1987).

The original VSH demonstrated a Cronbach's α of .82 in non-hospitalised adults. Convergent validity was derived by comparison with the Baekeland and Hoy Sleep Log and the SMHSQ (Snyder-Halpern and Verran, 1987). Correlation coefficients with the SMHSQ items demonstrated a positive effect (r = .50–.74) and item correlation between the VSH and the sleep log regarding sleep latency was .22; lower than the accepted range of .30–.70 (Snyder-Halpern and Verran, 1987). Inter-group testing with regard to age found no differences in total sleep length, an unexpected result when looking at three groups of participants spanning 20–78 years (Snyder-Halpern and Verran, 1987). There were, however, differences in sleep onset and wakefulness after sleep onset among the age groups. One study compared the VSH with Echol's Patient Sleep Behaviour Observational Tool (EPSBOT) and actigraphy, and suggested the VSH did not accurately capture sleep onset latency but did reliably measure total sleep time (Kroon and West, 2000).

In a comparison study of the VSH with polysomnography, (Fontaine, 1989) no correlations were found initially between polysomnographic data and VSH variables regarding sleep latency, mid-sleep awakenings and wakefulness after sleep onset. Convergent validity relating to perceived awakenings was only demonstrated after the rescoring of the polysomnography wakefulness data to consider only wakefulness lasting more than four minutes (r = .39). Test-retest reliability for sleep latency, mid-sleep awakenings and wakefulness after sleep onset was demonstrated in Fontaine's study (r = .69 to .89).

4. Discussion

Lee's model suggests disrupted and limited sleep equating to sleep loss and impairment with the risk of adverse health outcomes. It would therefore be beneficial if a tool was available that could assess inpatient sleep, however clinical assessment of inpatient sleep quality and quantity by nurses has yet to be standardised. Although several reviews of sleep assessment tools have been undertaken previously (Bourne et al., 2007; Cole et al., 2007; Devine et al., 2005; Wells et al., 2009), none has been specific to the acute hospital ward setting.

In this review, two of the three tools identified were compared with polysomnography: the RCSQ and VSH. No studies were found that compared any of the three tools with either bispectral index measurement or the single-item sleep quality numeric rating (Cappelleri et al., 2009; Martin et al., 2009). Although the latter tool was excluded from this review, its simplicity could be useful in a hospital setting. Thus it would be beneficial to undertake further evaluation in a hospital sample.

The RCSQ has been used largely in critical care settings. Measured against polysomnography, it displayed positive psychometric properties in reliability and correlating with those polysomnographic measures capturing some of the domains of sleep quality in terms of sleep onset, awakenings and depth of sleep. Its ease of scoring, brevity and non-burdensome time commitment from the patient and/or carer make it an attractive option for evaluation of patient sleep assessment in an acute hospital ward.

Some convergent validity was found with the VSH and polysomnography in awakenings of at least four minutes. The VSH was compared with EPSBOT in a study of non-surgical hospital inpatients (Kroon and West, 2000). Designed in 1968, the EPSBOT is an early rating scale involving half-hourly observation and recording of eye movement and position, body movement and response to stimulation. Implicit in the practice of assessing response to stimulation is the counterproductive potential for disturbing sleep. It is therefore unsuitable for acute inpatient sleep assessment. Despite varying results, the VSH has demonstrated positive psychometric properties and appears to capture sleep disturbance (Humphries, 2008) and its improvement (Scotto et al., 2009). Discriminant validity was noted in a non-hospitalised sample, showing a correlation between chronic pain and sleep disturbance (Call-Schmidt and Richardson, 2003). However, one study cast doubt on its use in an acute clinical setting, concluding that hospitalised patients found it difficult to use (Bartick et al., 2010).

No studies testing the SMHSQ against polysomnography were identified. However, it has been tested with actigraphy in outpatient samples where correlations have been found with sleep efficiency and test-retest concordance (Clarke et al., 2013; Morita et al., 2011). The SMHSQ demonstrated discriminant validity in sleep responses during a methamphetamine withdrawal study (Mcgregor et al., 2005). This tool was one of the earliest to be developed and further psychometric evaluation may be beneficial. While it may effectively measure very recent sleep behaviour, its lack of standard scaling and scoring presents challenges.

With regard to the reliability of self-reporting tools, consideration should be given to the factors which may impact upon a patient's self-report. One study, for example, found anxiety and depression may alter perceptions of sleep latency and total sleep length (Matousek et al., 2004). It is also suggested that correlation between self-report of sleep and polysomnography is less than perfect (Weigand et al., 2007). Nevertheless, the collection of subjective indicators in itself may augment awareness of sleep-related issues in patients and/or their carers.

This review evaluated tools providing a global assessment of the previous night's sleep of hospital inpatients. Given the current absence of standardised sleep assessment in acute hospitalised patients, identification and use of a tool may improve nursing awareness and promotion of inpatient sleep. Beyond this standardised sleep assessment approach lies the need for in-hospital use of tools to screen for sleep disorders such as obstructive sleep apnoea, which are pathological states that can disrupt sleep. Such tools do not assess quality and quantity of sleep, but evaluate the possibility of patients having specific sleep disorders based on the presence of particular variables such as snoring, neck circumference, witnessed apnoeic events, age, gender and presence of hypertension (Chai-coetzer et al., 2011; Chung et al., 2008). In this regard, further examination of

instruments such as the STOP-bang questionnaire or the OSA-50 would be useful (Chai-coetzer et al., 2011; Chung et al., 2008). Pre-anaesthetic units are beginning to see the risk-minimisation value of such screening (Lakdawala, 2011; Setaro, 2012).

This review sought to identify and evaluate sleep assessment tools that could be employed clinically with hospitalised patients. To be suitable, they need to be brief, easy to understand and use, and have positive psychometric properties ensuring the instruments are reliable and valid. Of the three tools evaluated, the RCSQ is likely to be most useful. It possesses the requirements of brevity, ease of use and understanding and shows reliability and validity in capturing sleep domains that provide a global assessment of sleep. However, it does require further testing in an acute hospital setting beyond the intensive care environment.

5. Limitations

A limitation of this review is that it was restricted to English language publications. It is possible that exclusion of papers for linguistic reasons may have encouraged conclusions different from those that may have been reached had this exclusion not been applied (Gregoire et al., 1995). However, previous studies suggest such exclusions produce results similar to more extensive searches free of language restriction (Egger et al., 2003; Juni et al., 2002). As with all reviews, there is a risk of some bias with regard to selection of included studies (Tricco et al., 2011).

6. Conclusions

In acute care settings, nurses are well-placed to play an important role in sleep promotion and advocacy in sleep health matters. In this context, routine inpatient sleep assessment is highly relevant, as this in turn should lead to the implementation of interventions that promote healthy sleep and thereby expedite recovery.

Assessment of patient sleep should be made using a valid and reliable instrument. This literature review identified three subjective sleep assessment tools. Of the three, the Richards–Campbell Sleep Questionnaire has greatest potential for use in the acute hospital setting. It is brief, easy to use and understand and has demonstrated reliability and validity in the capture sleep domains to provide a global assessment of sleep. However, it should be subject to further testing.

Conflict of interest

The authors declare no conflicting interests.

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